TELEDYNE, INC. ANNUAL REPORT 1965

CONTENTS

TO OUR SHAREHOLDERS:

Growth, creating new opportunities through greater resources and technological depth, is a continuing objective of the company. Essential to and resulting from growth is profit. In each of the years of its history Teledyne and its earnings have grown significantly, continuously enhancing the company's potential for further accomplishment. The spirit and enthusiasm essential to growth is as evident in the people of Teledyne today as it was the day the company was formed. It is with this spirit and enthusiasm that a review of the 1965 fiscal year and a report on activities is presented.

The growth of Teledyne is evident in many ways. Net earnings more than doubled to $3,402,000 compared to the $1,441,000 reported last year. Net income per common share increased to $1.98 from $1.34. Sales reached $86.5 million compared to $38.2 million for the previous year. Shareholders' equity increased to $34.8 million from $13.7 million. Working capital rose to $30.8 million from $14.2 million. Book value of company owned facilities doubled to $14.7 million.

The number of Teledyne employees at year end reached 5,400, more than twice the number employed a year ago. The efforts of these accomplished people make it possible for others to join them at all levels of technical and managerial capability, and many new employees are currently being added throughout the company. Although facilities in use at year end expanded to 1,046,000 square feet from 650,000 square feet last year, plans are being accelerated to construct an additional 300,000 square feet of company owned engineering and production facilities.

In previous annual reports we have emphasized Teledyne's fundamental dedication to the field of automatic control systems, equipment, and components. We have described the products of this field as consisting of several elements: sensors or measuring instruments for measuring the quantities to be controlled; computers for calculating from the measured quantities the kind and degree of control to be effected; actuators to carry out the control function; communication links to connect together the elements of the control system; and displays for the human beings concerned with the operation.

Automatic processing and control equipment is penetrating into every area of commerce and industry, and is making itself felt in every facet of our daily lives. In cultivating this limitless field, Teledyne applies itself to certain carefully selected market areas where the rate of growth and degree of opportunity is especially great. Thus at the present time the markets we primarily serve

are three in number: aviation electronics, industrial process control, and earth and ocean sciences. Utilization of electronic equipment and devices is rapidly increasing in all three of these expanding markets.

Important developments took place in each of our key market areas during the year, and many of these developments are discussed in the following pages. Four subjects are given special emphasis: the Integrated Helicopter Avionics System (IHAS) being developed by Teledyne to provide helicopters with an all weather operational capability; the development of a miniaturized Flight Reference Stabilization System (FRSS) applicable to a wide range of aircraft; the installation and operation of the world's first Large Aperture Seismic Array (LASA) for detection of underground nuclear explosions; and continuing progress in the development of circuits basic to all electronic equipment, as exemplified in our microelectronic technology.

In addition to internal developments such as those just mentioned, our capability was further enhanced through the acquisition of several talented organizations during the year. In each case, these acquisitions contributed to the further penetration of our chosen market areas. Thus in aviation electronics Automated Specialties brought us its outstanding capability in automatic throttle controls, instantaneous vertical speed indicators, and angle of attack instrumentation. In the field of industrial controls Glenn Pacific added to our capability with its line of controlled power supplies for automatic welding equipment. Our position in the earth and ocean sciences was strengthened by the addition of The Geotechnical Corporation with its know-how in seismic technology and its growing activities in the ocean sciences.

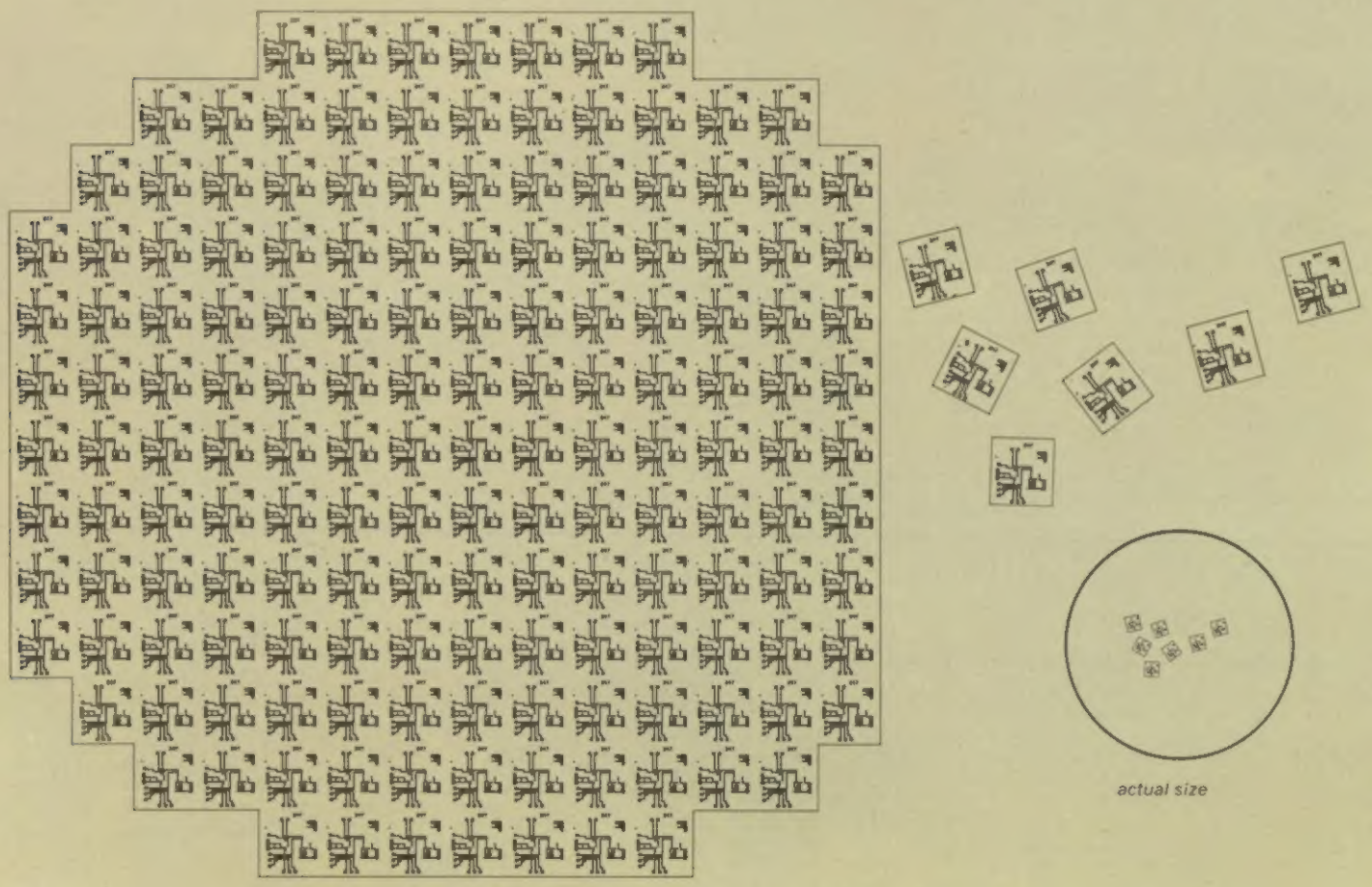
Supporting our general position in electronic technology was the addition of Microwave Electronics with its capability in the generation and amplification of microwave energy, embodied in its position in the traveling wave tube field. The acquisition of Crystalonics broadened our line of transistors and other semiconductor devices that are basic to the entire field of electronics.

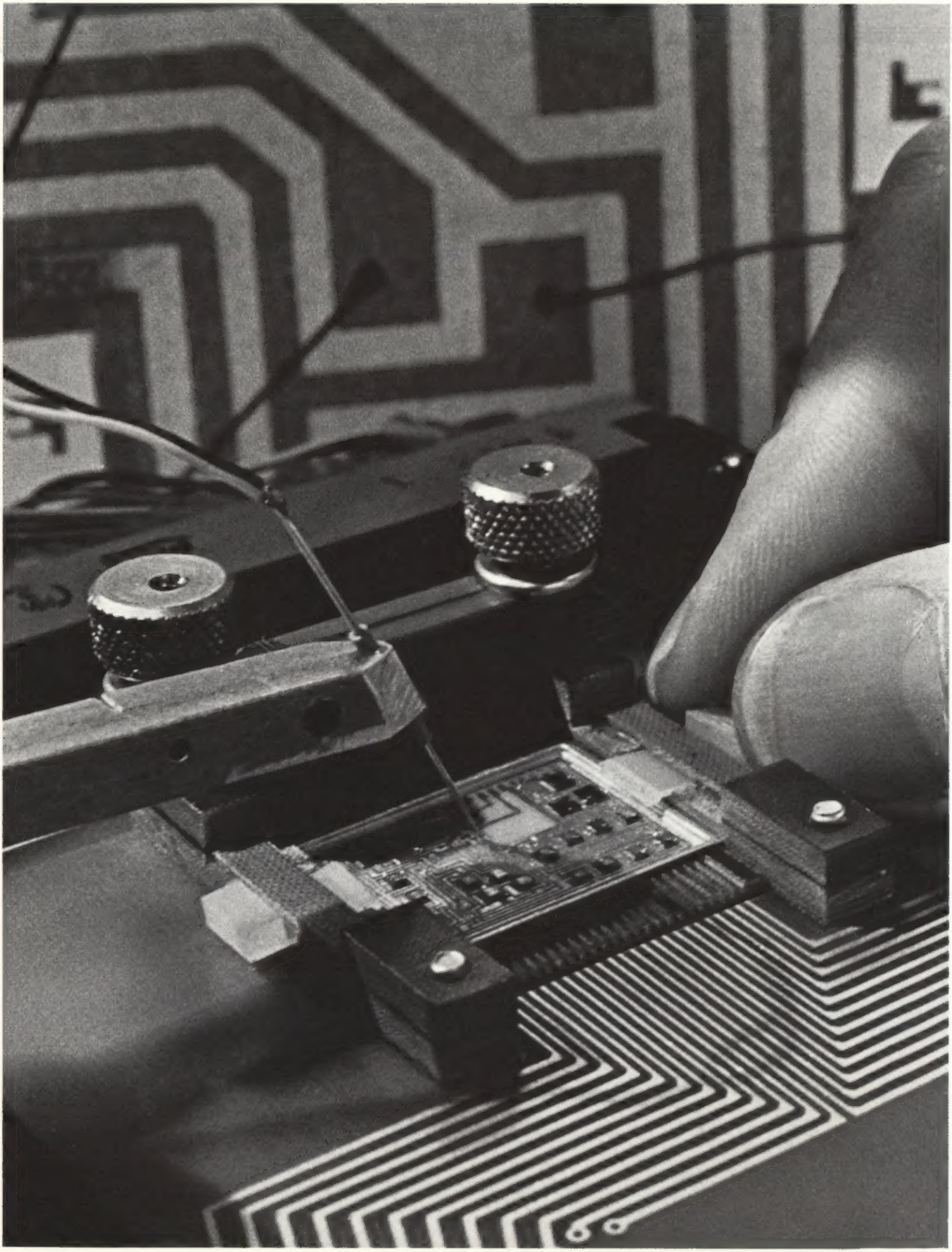
Teledyne is entering 1966 with the brightest prospects in its history. Backlog is at record levels and business activity in our operating divisions is at an all time high. During this period of expanding activity, much of our effort will be directed toward strengthening, broadening, and deepening the technological and managerial capability of the company, in preparation for continued growth in the years ahead.

Henry E. Singleton

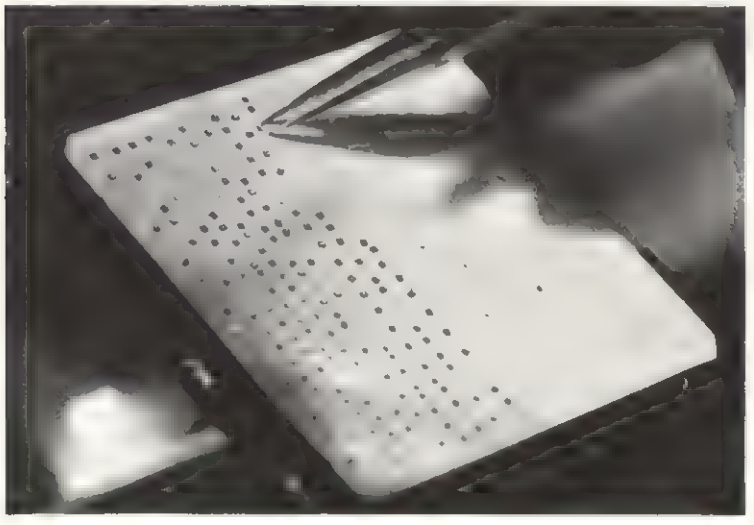
PRESIDENT

Basic to modern automatic processing and control equipment is the electric circuit—the complex of materials in which electrical energy performs its information processing function. Advances in materials technology, and more particularly in the fundamental knowledge of and the understanding of how to control the electrical properties of materials, is stimulating radical improvements in production of electric circuits. The extraordinary versatility of semiconducting solids, exhibited initially in the transistor and more recently in the more complex integrated circuit, has permitted these materials to assume a dominant role in the production of electric circuits. □ Teledyne is a leader in the development and application of semiconductor technology. The technical jumps from vacuum tube to transistor, and from transistor to integrated circuit have been made, and our metallurgists, chemists, physicists and engineers are participating in further advances. The economic and technical advantages of integrated circuits are such that they will determine the configuration of a majority of electronic equipment for many years to come. The growth potential of integrated circuits is so great that a single program on which the company is at work today may ultimately use as many integrated circuits as was produced by the entire industry in 1965. □ Here, vastly enlarged, is a mask used in producing wafers for integrated circuits. Each of the 167 integrated circuits in this wafer (a small portion of which is greatly magnified in the photograph on the opposite page) contains the equivalent of 17 transistors, diodes and resistors—a total of 2,839 components.





Against a backdrop of greatly enlarged engineering diagrams skilled technicians assemble tiny three-quarter square inch microelectronic modular assemblies (MEMAS) consisting of some 25 separate integrated circuits (page 5). During the year the technological leadership of Teledyne in the field of semiconductors and microcircuitry was re-emphasized through advances made by our Amelco Semiconductor and Crystalonics divisions. Our semiconductor business more than doubled in 1965 with increases in all product areas. ☐ In the field of digital integrated circuits advances were made to keep step with industry requirements, and a new series of transistor-transistor logic elements is expected to receive wide acceptance in the low power space systems market. Our analog integrated circuits now include a number of video amplifiers, pre-amplifiers and operational amplifiers. We are producing analog circuits as hybrids—which incorporate a number of discrete interconnected transistors, capacitors and resistors—as well as in diffused monolithic circuit form, with all elements in a single silicon chip about the size of a pinhead. We believe we have become one of the nation's leading suppliers of integrated analog circuits, and we expect the use of such circuits to undergo a major expansion in the immediate future. ☐ The company's market position in high reliability discrete devices was enhanced through technical advances in injection type transistors, photosensitive field effect transistors, differential amplifier pairs and PNP transistors to complement the NPN line. A new line of P-channel field effect transistors was added during the year, as well as a series of epoxy encapsulated units to compete in the high volume commercial market. We also introduced a power field effect transistor that switches high currents faster than any other device. Our newly developed PNP transistors, with high voltage capacity at medium power, were offered to industry for the first time. Another development this year was an all epitaxial varactor that makes possible rapid voltage tuning. ☐ A photosensitive field effect transistor was developed to replace phototubes, photomultiplier tubes, photosensitive cells and phototransistors. These new devices are the first with sufficient speed to permit realization of the full benefits of computerized character recognition, as used for example in fingerprint identification and automatic mail sorting. Teledyne's capability in semiconductors is being applied to the IHAS computer (page 25), and we are simultaneously expanding our marketing operations to realize more of the sizeable potential in aviation, space and industrial applications.



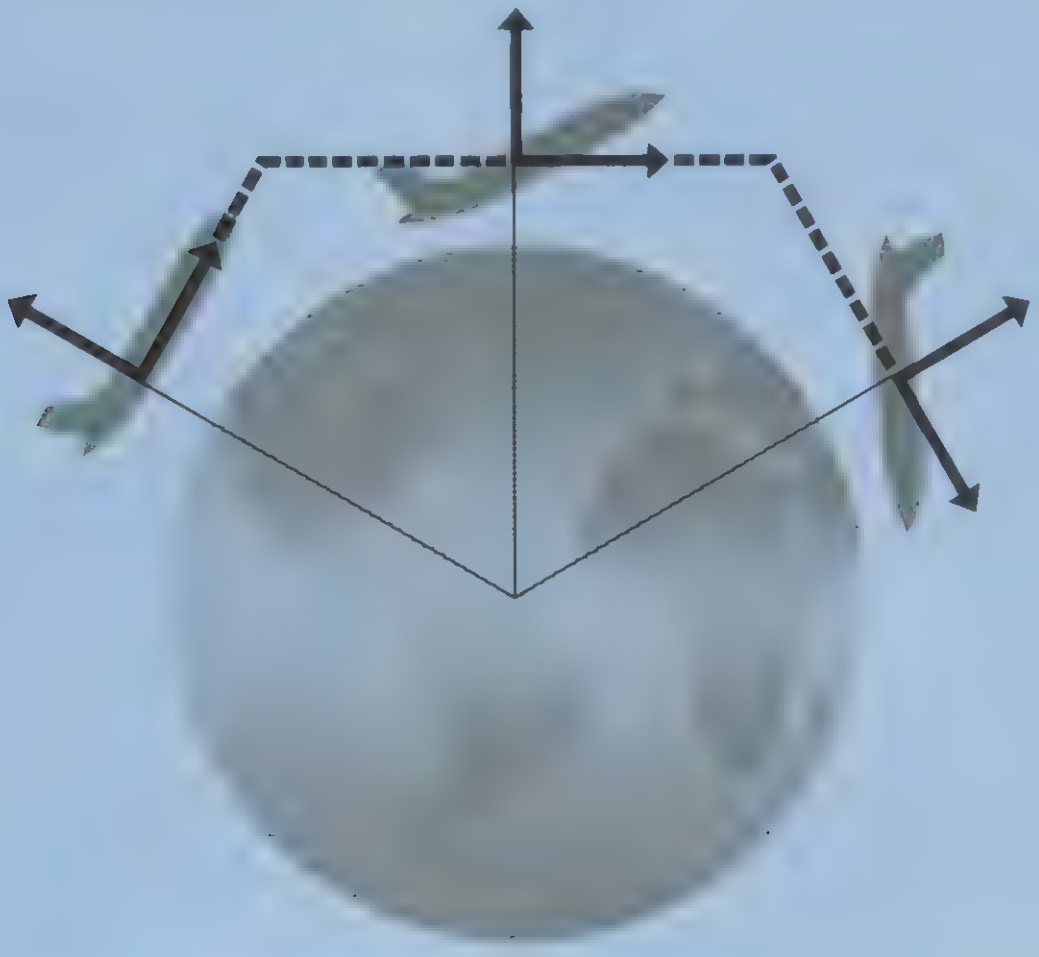
Antennas and instrumentation comprise the essential elements of Teledyne's microwave backscatter range which is used to predetermine the radar reflection characteristics of specific aircraft. A manufacturing and service activity of our Micronetics division, the techniques utilize scale models of the aircraft, and the results allow one to determine how the actual airplane will appear on the radar screen, from any angle and at any distance. Such knowledge is essential in designing air traffic control systems for commercial and military aircraft. It is also useful in designing new aircraft where it is desired to enhance or minimize the reflection characteristics for identification or security reasons. Production of our proprietary target augmentation devices, placed on aircraft to enhance their images when seen on radar, was increased during the year. □ We also continued development of the microwave portion of a railway boxcar identification system now in experimental use on two railroads. The microwave reader identifies the boxcars by number as they pass, and the information is telemetered to a central computer, permitting the railroads to keep continuous up to the minute nation-wide control of all their rolling stock. Our microwave systems know-how is also being applied to the development of the microwave transmission and reception equipment used in the IHAS station keeping system (page 25).

Electromagnetic relays developed and manufactured by our Teledyne Precision division are the smallest available. Hermetically sealed in a package the size of a standard transistor, these high speed electronically controlled switches are ideal for aircraft and space vehicles, where size and weight are critical. During the year we added new versions to the line that was already the most extensive of any ultraminiature relay series. Exhaustive tests under severe environmental conditions have led to the approval of our relays for such advanced aircraft, satellite and missile programs as TFX, Saturn V, Titan III, F4H, Phoenix, LEM, Apollo and Voyager. Teledyne also produces larger radio frequency, coaxial, waveguide and stripline switches used in a variety of applications including radio altimeters for aircraft and satellites.

An astronaut's first close-up view of the moon will be through one of the special windows produced by our Optical Products division for the Apollo spacecraft. Application of ultra-precise techniques and experienced production know-how has established Teledyne as a leader in the production of precision optical components. For example, one unusual product is our infrared dome assembly for missiles and aircraft. This meticulously produced dome is made of pure silicon. It protects the infrared detector, and serves as a transmitting window to the detector at the same time. Silicon infrared domes are used in many of our country's detection and countermeasures systems, and again last year we produced most of these domes. We are also participating in a program to produce an optical beacon which may be used as a visual guide for the Lunar Excursion Module on its return from the moon's surface to the orbiting command module.

Products created through technology of the McCormick Selph division are proving that for many applications explosive devices are more reliable and efficient than any other. Once thought too dangerous or uncontrollable for precise applications, explosive systems have demonstrated their efficiency in space and airborne systems and have potential in commercial as well as military uses. Teledyne explosive devices are used in Gemini flights from launch through stage separation. Other non-munitions services are found on missiles, rockets, torpedoes and aircraft. Exacting explosive techniques are being adapted to the crew escape system for the F-111 airplane. In an emergency, the explosive system cuts the structure and skin of the aircraft, allowing ejection of the complete pod containing the pilots and instruments, which is then dropped safely to earth by parachute. Other Teledyne explosive products make use of both electrical stimulus, as in exploding bridgewire devices, and non-electrical stimulus where it is desired to keep explosive devices separate from electric circuits. Design was completed and production was begun this year of an exploding bridgewire system for the Pershing missile which provides for motor ignition, stage separation and thrust termination. A unique application is to airborne emergency release systems, in which the explosive actuated device severs metal cables on parachutes in equipment drops, and severs cables on nets towed by airplanes in satellite recovery operations.

Representing a significant milestone in man's ability to determine exactly his location and velocity as he pilots his aircraft at varying speeds and through changing maneuvers above the earth is Teledyne's Flight Reference Stabilization System (FRSS). Under development for the past five years, the tiny instrument held in the blue gloved hand on the opposite page is now nearing completion in our flight control laboratory. □ Smallest of its kind in the world, FRSS is far more acutely sensitive to the slightest movements of the vehicle in flight than the human body is to the forces it feels as the aircraft climbs or dives, changes direction or brakes to a stop on the runway. The compact inertial sensing platform, computer and power supply which comprise the system together weigh less than ten pounds. Microcircuits are used exclusively to achieve this unprecedented size and weight and, for the first time, are mounted inside the gyros and accelerometers. Production cost is expected to be no more than a third of that of existing systems of equivalent capability, while performance and reliability should be greatly improved. Under development for the Air Force's Flight Dynamics Laboratory, this versatile system is applicable to virtually all types of aircraft and helicopters in commercial and military use.

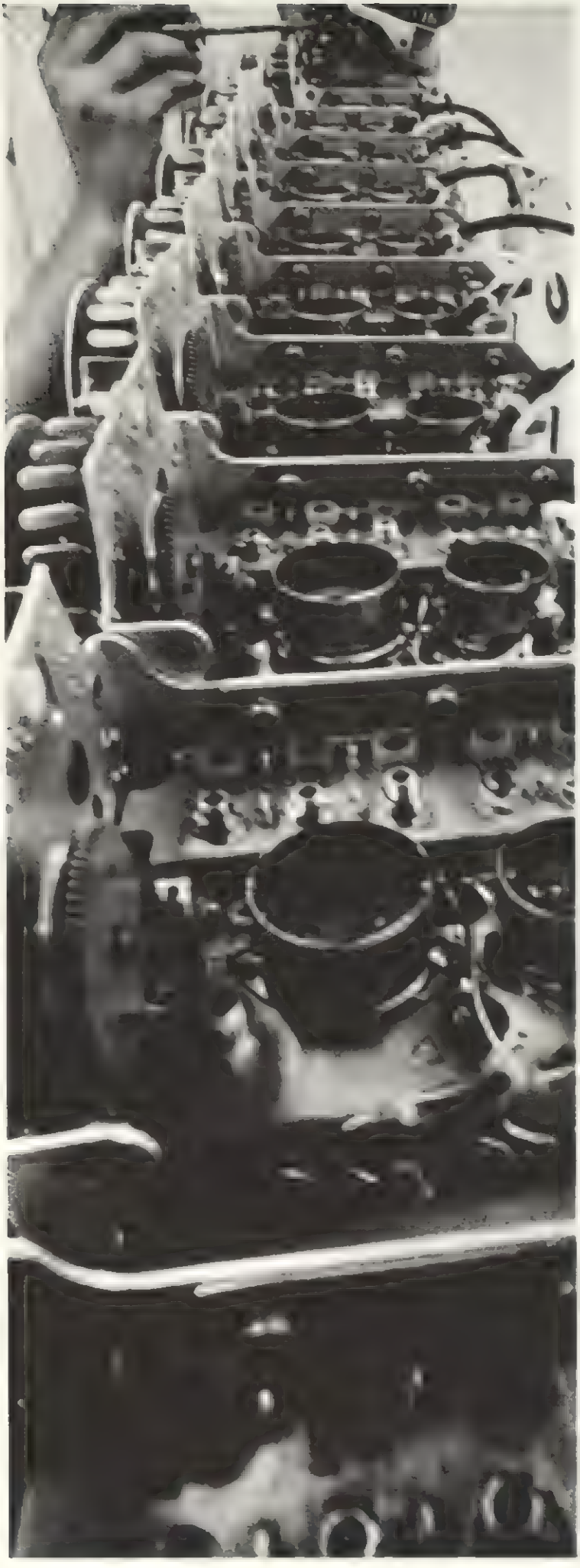


Air data computers designed and produced by Teledyne are the in-flight electronic brains of many high performance aircraft, including the Navy A7A attack airplanes now in production. Primary function of the air data computer is to give the pilot immediate integrated flight information including air speed, mach number and altitude. The computer also supplies the autopilot, navigation and weapons delivery subsystems with information necessary to fulfill their functions. The air data computer for the A7A weighs only 17 pounds, about one-third the weight of computers formerly used in similar applications. Teledyne is pioneering new developments in air data computers and converters, utilizing the advantages of microcircuits (page 5). These developments are expected to help maintain our position as a leading designer and manufacturer of these vital flight instruments.

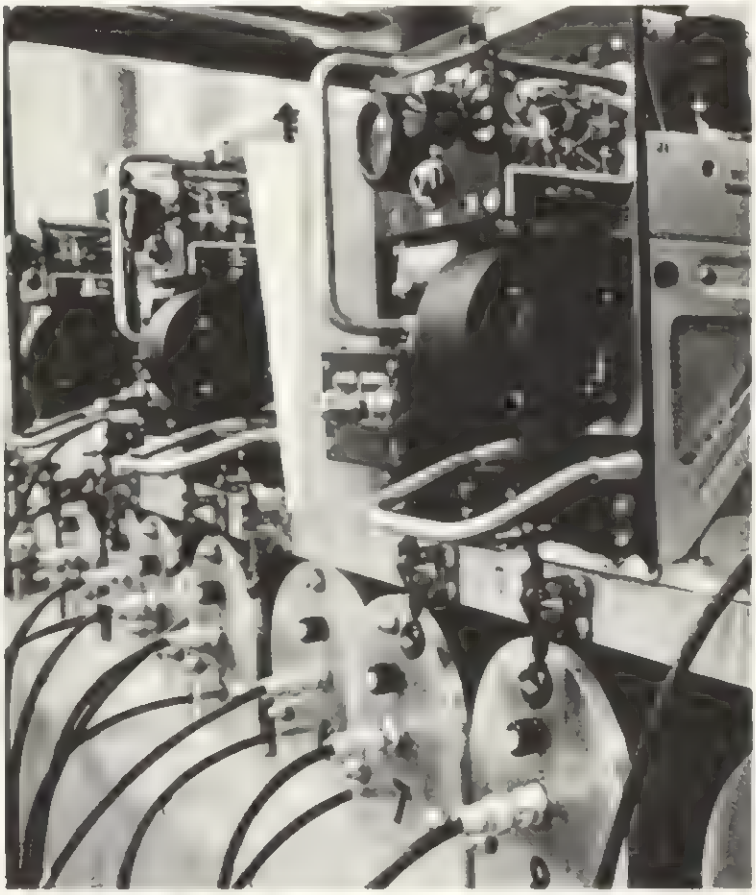
Standing alone in the forefront of more effective utilization of the radio frequency spectrum is the traveling wave tube. Intricately designed, produced with precision, it exp o ts the great potential of the microwave frequencies. Advancing the state of the art in devices to generate and amplify microwave energy is one of the important chal enges fac ng today's electronic scientist. In our Microwave Electronics division we are meeting this challenge. Our traveling wave tubes are used in communication systems, radar, instrumentation and in the vital electronic countermeasures equipments which defend ships and airplanes from enemy radar. Our tubes are the key to the IHAS station keeping radar (page 25). We supply more TWTs and backward wave oscillators for instrumentation such as test equipment and laboratory amplifiers than any other manufacturer. □ During the year we introduced improvements in microwave so id state delay lines which are expected to make important contributions to the advancement of the electronic countermeasures art. In the future new traveling wave tubes will be utilized in satellite and space communications systems, and n industrial applicat ons where the advantages of microwaves are recognized but as yet relatively unapplied. The microwave portion of the radio frequency spectrum is the region where the potential for development is greatest, because of the large bandwidth and information handling capacity which is waiting there to be used.

Exposed to the wind like a ,et age weather vane, this sensitive angle of attack transducer measures the angle of the aircraft wing in relation to the natural f ow of air. The information it prov.des is vital to aircraft performance, espec a ly in landing and weapons delivery calculations. It is one of the critical instruments manufactured by Teledyne that prov des the pilot with information essential to the control of his aircraft. This company developed transducer is standard equipment on numerous high performance aircraft. □ A related product is our Approach Power Control System, which maintains correct air speed for a prescribed average angle of attack, and improves overall flight path control by relating throttle movement to flight path variation. The system is especially valuable for landing on aircraft carriers and other short runways. Another such product is the Inertial-lead Vertical Speed Indicator which provides instantaneous rate of climb and descent information. The instrument is found in virtually all modern commercial airplanes and is widely used in military aircraft as well.

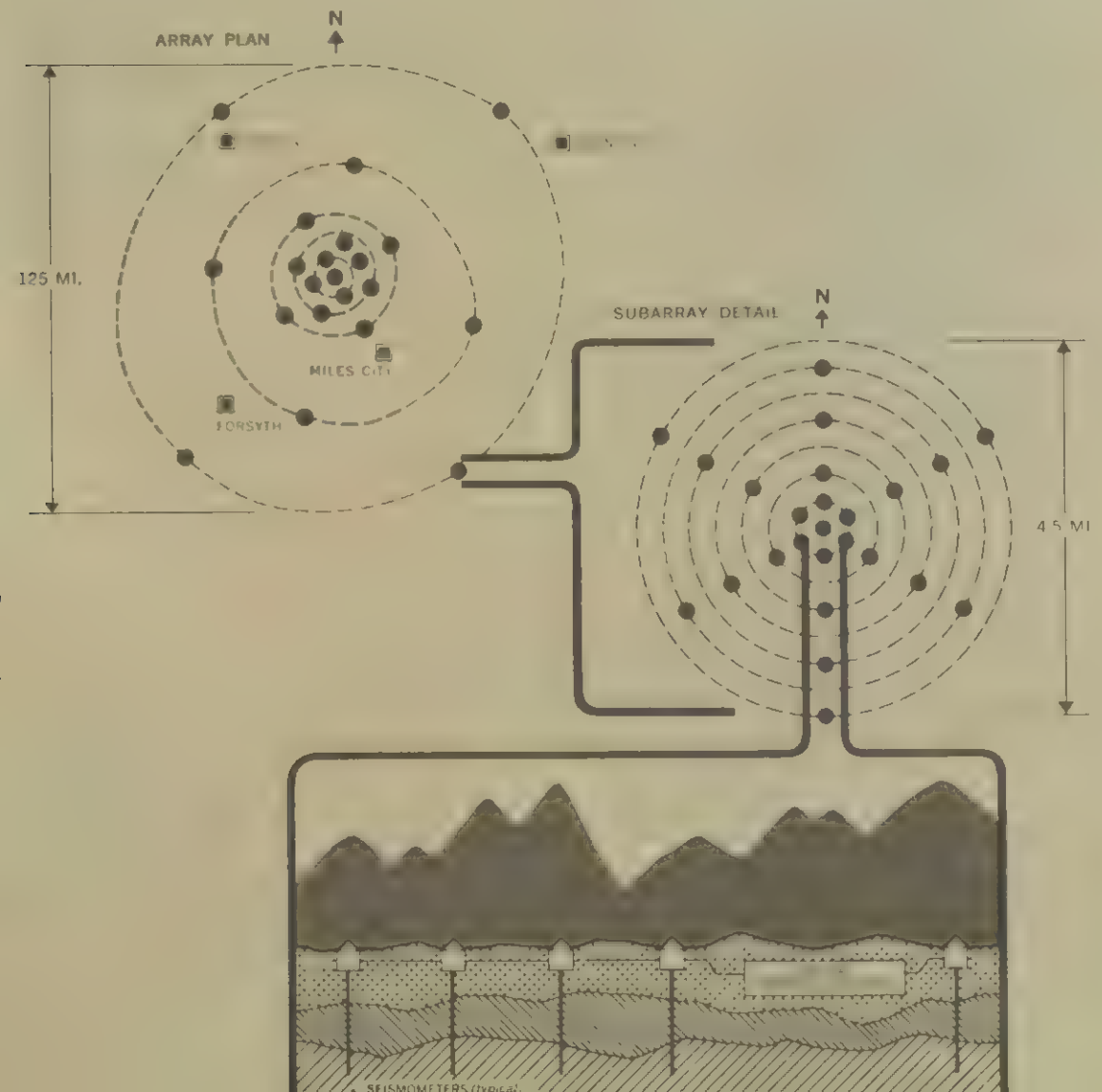
Telemetry, the automatic transmission of measured data and command and control information by electromagnetic techniques, is used extensively in space and missile applications and has great potential in industry. Teledyne produces a wide range of telemetry systems and components including signal conditioning amplifiers, pulse code modulators, subcarrier oscillators and transmitters. We are concentrating a strong developmental effort in pulse code modulation and higher frequency equipment. Pulse code modulation allows rapid transmission of coded information and is expected to see wider and wider use. Higher frequency systems are of increasing importance because greater amounts of information can be transmitted over the wider bands available at the higher frequencies. The attributes of speed and reliability that render telemetry the most effective technique for transmitting information and command and control signals to missiles and spacecraft make it equally useful in industrial and commercial applications. A typical telemetry system developed by the company automatically monitors water heights and actuates gates in dams and reservoirs for flood control.



Thousands of communications transmitters and receivers for military applications were delivered by our Communications and Dubrow Divisions last year, and Teledyne continues to be a major supplier of mobile, airborne, ground and shipboard communications equipment. In addition to providing complete equipments, our factories maintain continuous production of spare subassemblies and component parts for the numerous units now in the field. The advanced production techniques developed by Teledyne are resulting in on time delivery of high quality equipment and communications systems are expected to remain an important part of our manufacturing output.

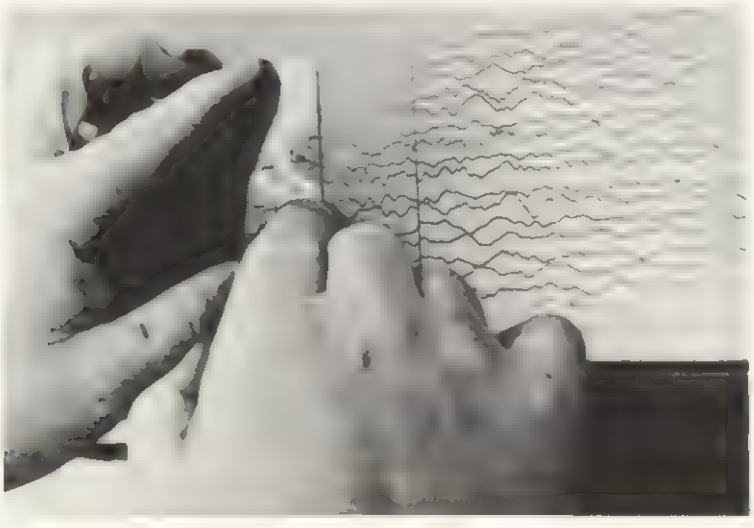


Nestled securely 200 feet below this conical metal cover in the open spaces of southeastern Montana is one of man's newest scientific tools—a highly sophisticated seismic ear sensitive to the faintest stirrings of the earth. This seismometer is just one of 525 similar instruments, deeply buried and carefully placed in a series of concentric patterns covering a 15,000 square mile area to form the Large Aperture Seismic Array, the most advanced seismological listening system ever assembled. ☐ Potentially capable of detecting an underground nuclear explosion anywhere in the world, LASA was installed and is now being operated by Teledyne in cooperation with the Massachusetts Institute of Technology and the Department of Defense. This experimental array, the possible forerunner of a world wide network of similar arrays, may offer important benefits to mankind beyond its vital capacity to police nuclear activity. From it, scientists may learn more about the behavior of foreshocks, the faint normally undetectable tremors that precede the arrival of major earthquakes. Perhaps LASA will also divulge information helpful in detecting and predetermining the course of tidal waves. In either event, more knowledge of these impending, highly destructive natural forces could be instrumental in the saving of large numbers of human lives.



The detection and measurement of earth movements is gaining importance as new applications for seismology are developed. In Los Angeles, for example, a building code now requires that recording seismometers be installed on the bottom, middle and top floors of virtually all new structures over five stories high. Such instruments, manufactured by our Earth Sciences group, provide information on building motion during earthquakes that will lead to more efficient structural design. In another application Teledyne is making seismic studies related to site selection for buildings and other structures, as in Seattle's Union Bay Project. To help determine the best structural design for an underwater vehicular tunnel we have installed a complex seismographic system in the bay bottom sediment. Recordings from the study will be used in determining the practicality of the site. □ During the year Teledyne continued its participation in our country's program for the detection and monitoring of underground nuclear explosions. For example, we are continuing to operate the Tonto Forest Seismic Observatory in Arizona, which includes 80 seismometers strategically placed over 23,000 acres. At the time of installation by Teledyne in 1963, it was the world's largest seismic observatory. But this past year it gave way as largest to LASA, the huge Large Aperture Seismic Array in Montana (page 19) also installed and operated by Teledyne. The data being reported from these and other seismological stations around the world are digested and interpreted at the Seismic Data Laboratory in Alexandria, Virginia which we operate under government contract. □ The evolution of seismic science has reached the point where not only can earth movement be detected, but the physical strain in the earth can be measured as well. Such advances have given rise to the possibility of earthquake prediction, and Teledyne, with others, is studying this possibility. The prediction of earthquakes could lead to great savings in life and property, and is one of many reasons that the scientific study of the earth and its properties will continue to be one of man's most rewarding endeavors.

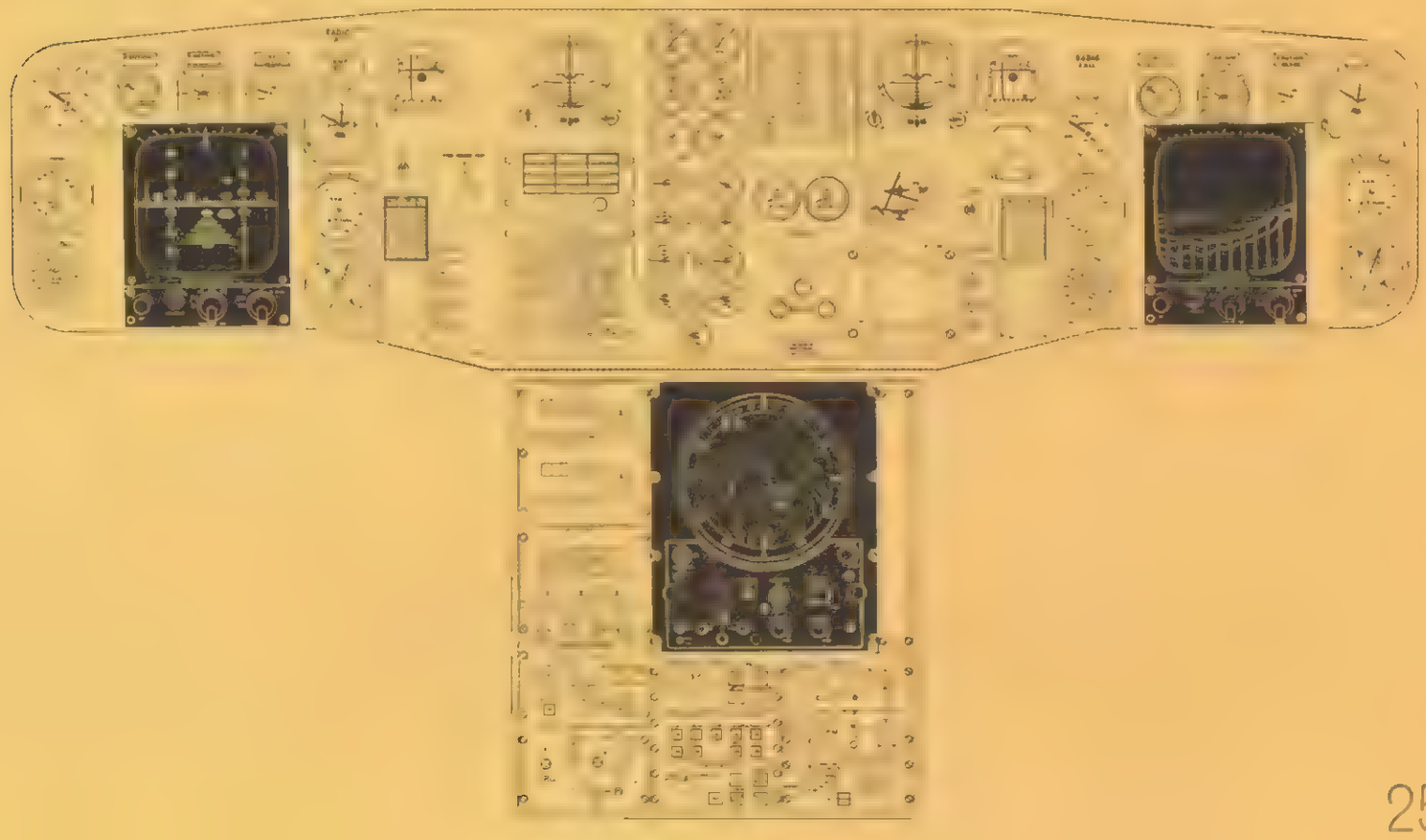
Development and manufacture of instrumentation utilized in seismological studies around the world is an important activity of Teledyne. During the past year instruments of our design were installed at the Large Aperture Seismic Array (page 19) in Montana to aid in gathering information from that great system. For storage of very large quantities of seismic data our Geotech division has developed an ultra-slow tape recorder with tape speeds ranging from 0.03 inches to 0.09 inches per second. Three of these recorders are now being marketed for industrial uses on a nation-wide basis. Two laboratory models record unattended for 33 days while the portable field version has 10 days' capacity. During the year we also announced, through the Geotech division, our entrance into marine geophysical exploration where seismic techniques have long been used in the search for oil and minerals. We are currently operating our own electric arc seismic section profiler system in the Gulf of Mexico. Sound waves from an electric arc periodically discharged in the water are reflected from strata in the earth beneath the ocean floor. The reflections are detected at the surface by hydrophones and stored in recorders carried on the moving ship. After processing in a computer the reflected sound gives information about the underlying strata useful in locating oil and mineral deposits. To supplement the electric arc system, we have acquired an exclusive license to manufacture and use Shell Development Company's deep water gas source seismic profiler system. This system permits efficient and speedy seismic profiling at depths to 15,000 feet.



Topographic maps are the visual results of surveys accomplished through the advanced techniques of Teledyne's Geotronics division, which specializes in geodetic, route location, offshore and photogrammetric surveys. Our Monomeasurements system combining aerial photographs and computerized analytical solutions permits the establishment of precise coordinates and elevations for any point visible on the photographs. The system pioneered by Teledyne, allows significant savings in survey costs because it requires only a few horizontal and vertical ground reference points to complete a survey from the air. So precise are the measurements using this method that over a period of time, it is possible to determine ground movement of less than an inch. The end result of Teledyne's computerized solution is direct control of digital plotters which produce a graphic display of the engineering information. In 1965 we began work on the largest geodetic survey contract we have received, and under which we are surveying for the Army Map Service an area in Iran approximately the size of the state of California. Our geodetic capabilities are applied to a variety of projects from highway planning to precise positioning of offshore drilling rigs. For use in the oil industry the company has developed a computerized method that takes information from earth sample data, aerial photographs and property records, to correlate surface ownership with subsurface oil pools.

Careful control of oxygen content in storage environments provides marked improvement in quality of perishable foodstuffs over that achieved by the use of refrigeration alone. Teledyne's Analytical Instruments division is a leading manufacturer of monitoring and control instrumentation for use in storage warehouses and on shipping tankers. Our process control instrumentation and gas detection equipment is marketed to the steel, chemical, petrochemical and petroleum industries, for applications where the mixture and blending of gases or liquids is critical. The division's new portable oxygen analyzer, now being marketed for environmental testing and safety engineering, makes use of a proprietary micro fuel cell that determines the percentage of oxygen in the atmosphere and provides power to activate a meter control unit. One version of this analyzer is small enough to fit into a coat pocket and serve as a personal safety device. During the year we completed the development of a new model of our toxic vapor detector. The new model, capable of detecting vapors arising from leaks in the fuel system of rockets employing proposed new rocket fuels, can be retrofitted to existing equipment. The increasing need for analysis and control of gases and liquids in the process industries, plus the new markets that environmental control introduces, is expected to permit considerable growth in our analytical instruments business in the years ahead.

Advances in automatic controls are fundamental to advances in aviation, and the Integrated Helicopter Avionics System is the most advanced control and guidance system ever conceived for helicopters and other vertical take-off and landing aircraft. The system is being developed by Teledyne for the United States Navy and is intended for initial installation in the Marine Corps' CH-53A assault helicopter. The purpose of the system is to enable helicopters to ferry troops and supplies from Navy transports quickly and precisely to selected inland locations under adverse conditions. ☐ IHAS incorporates an automatic flight control system which gives the helicopters all-weather blind flying capability. The forward looking radar has an automatic terrain following mode which permits the helicopters to fly close to the ground to avoid detection, and still clear hills or other obstacles in their path. To increase chances of getting past enemy defenses, the helicopters are automatically grouped into formation by the IHAS in-flight station keeping system. ☐ All of the flight control and navigation functions of IHAS are coordinated in the computer central complex which serves as a nerve center for the system. This unusual special purpose incremental digital computer is especially suited for real time control applications. Its design is based on the use of integrated microelectronic circuits designed and built by Teledyne's Amelco Semiconductor division. ☐ The cockpit layout for helicopters using IHAS is displayed here. The television type displays show the pilot the terrain ahead, and permit him to evaluate the computer generated information utilized in route selection, decision making and automatic flight control.



Precision hydraulic fittings are extensively used in modern high performance aircraft. Actuation of the control surfaces which guide the airplane through the air, lowering and retraction of the landing gear and many other critical functions are carried out hydraulically. Through our Linair Engineering division Teledyne is a major supplier of these essential components to the aircraft industry. To meet the many applications we manufac ture fittings in a variety of exotic metal and alloy versions, as well as in a variety of shapes and sizes. Teledyne fittings are in use on virtually every commercial and military aircraft in the air today. □ In addition to supplying the growing aviation markets, Teledyne also makes high reliability precision hydraulic fittings for a number of critical industrial applications. Our industrial fittings are used principally in large automatic machinery installations, where failure would be very costly. Of particular significance for industrial applications is our newly developed patented flareless fitting, which introduces a novel method of sealing without overlap. Among the advantages of the advanced new fittings are easier installation and less costly maintenance. Marketing of the new flareless components will begin this year.

Directly above and forward of the cockpit crew in the new DC 9 jet aircraft is a vital advisory and warning display developed and manufactured by Teledyne's Radar Relay division. The display is the visual output of a sensor system that provides advisory information about all important conditions in the aircraft, from unlatched doors to oil pressure. Teledyne's visual warning displays are soon to be joined by our newly developed audio warning systems. Miniaturized, even to the tape that tells the pilot about the exact condition, audio warning systems represent a new concept and figure prominently in future plans for both fixed wing aircraft and helicopters. As the usefulness of aircraft in the economy increases, our contributions to the development of visual and audio warning systems will continue to grow in importance.

Large reels spin off as much as four miles of film insulated conductive copper winding in the production of magnetic coils for each distribution transformer manufactured by our Crittenden Transformer division. Teledyne produces such transformers to meet the demands of a variety of large power users such as factories, office and residential buildings, shopping centers and institutions. Users purchase power at high voltage from the utility companies and employ transformers to reduce the voltage for internal distribution. For example, a recently shipped 2,000 kva transformer accepts 12,800 volts from the utility, steps it down to 480 volts and distributes the power economically throughout the plant for standard voltage applications.

Welding power supplies, variable voltage transformers, line voltage regulators, custom direct current power supplies and related specialized equipment is manufactured by Teledyne's Glenn Pacific division for the industrial market. The division originated the constant potential rectifier type power supply which, through its characteristic of producing uniform welds, is especially suitable for automatic welding applications. Such power supplies are now used throughout industry especially in the field of metallic inert gas submerged arc and cored wire welding. Our line voltage regulators are finding increasing demand as the need for stable line voltage becomes urgent, particularly where computers or other specialized instrumentation are used. The special power supply markets using DC arc furnace, anodizing, plasma arc and general purpose DC supplies present additional growth opportunities. Many of the thousands of variable voltage transformers we build are used in industrial drive systems where exacting speed control and regulation is essential. The expanding market for industrial drive systems is also the primary target of our Pacific Industrial Controls division with its diversified line of motor speed control equipment. Development of new proprietary products in this area was continued throughout the year.

Mobile jet engine starters and power converters contribute to around the world servicing and maintenance of aircraft, primary functions of equipment manufactured by our Sprague Engineering and Fleet Power Divisions. Our jet engine starters are used by airframe manufacturers and commercial airlines, as well as in military applications. Sprague continues to be a prime supplier of both fixed station and mobile equipment for testing hydraulic systems and supplying hydraulic power, and is now producing large numbers of flight line test equipments, both electric and turbine powered, for the Air Force. In addition to standard production models, the division develops and produces specialized items for critical applications. For instance, a unit for purging huge Saturn rocket engines to reduce explosion possibilities during testing was recently completed. During the year, net increased its sale of equipment for the generation, conversion, monitoring and control of precise power. A 250 kw rotary type, battery backed, no-break power system — the largest rotary system of this type to date — was delivered in 1967. The no-break system switches to battery operation when a power failure occurs, eliminating the few moments of power loss between power failure and transfer to field generators. Fleet is also developing the largest static no-break system — a 200 kw system for the Navy's Bureau of Yards and Docks. This program will significantly advance Fleet's position as a leader in the field. Another development of interest last year was a compact static high-powered transient synthesizer. The system is the first of its kind ever developed and is capable of generating programmable voltage and frequency transients with power peaks in excess of four megawatts for systems of any broad range of power supply parameters. The synthesizer is invaluable in the testing of communications and other electronic equipment.

Microeye, the smallest television camera-transmitter ever produced, was conceived by Teledyne for the National Aeronautics and Space Administration. The two and one-half pound package consisting of a complete camera and transmitter is a television station in itself, and can use either radio frequency or coaxial cable to relay the video signal. Microeye employs microcircuitry (page 5) throughout and produces images with a resolution equivalent to that of commercial television. The development is being sponsored by NASA to test the feasibility of using the small, compact design for high quality, reliable space applications. The potential of Microeye in a multitude of military and commercial applications includes those where television was previously impossible due to size or power limitations.

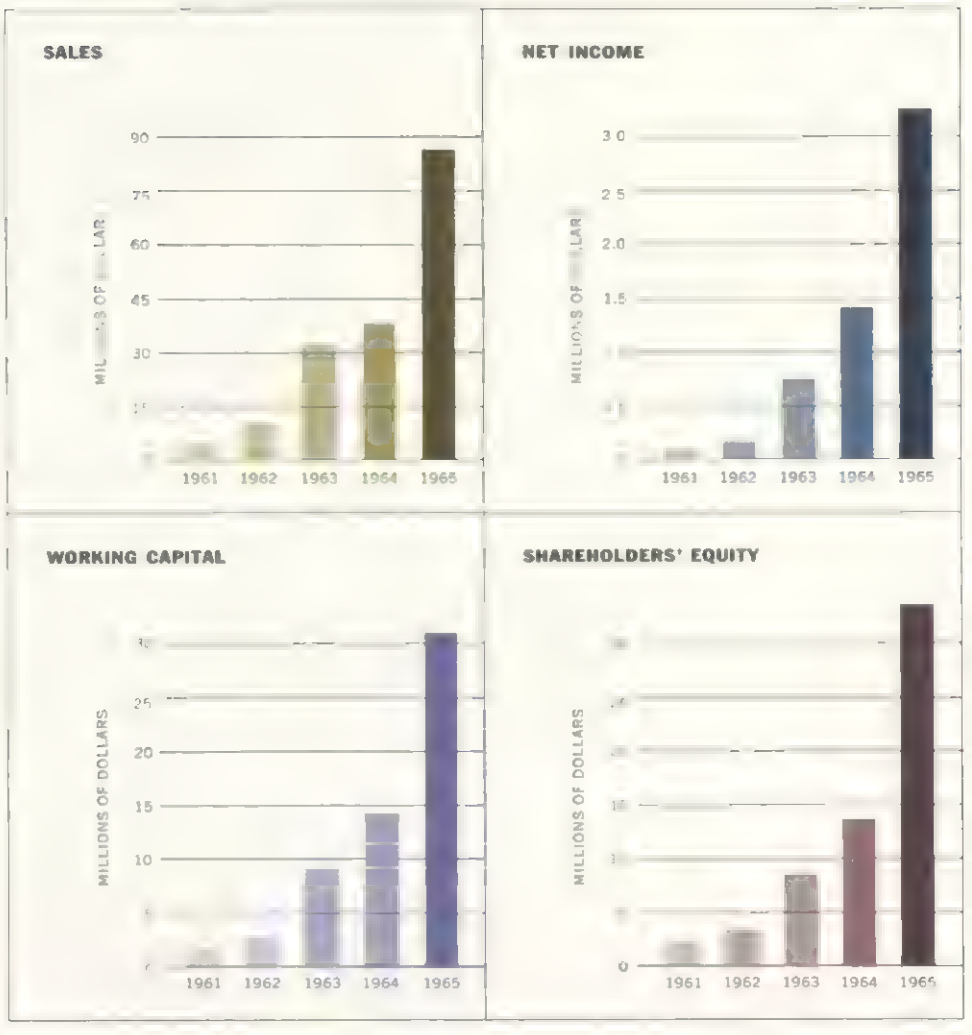
FINANCIAL STATEMENTS

HIGHLIGHTS FROM OUR ANNUAL REPORTS

	1965	1964	1963	1962
OPERATING RESULTS				
Sales	$86,504,000	$38,187,000	$31,925,000	$10,438,000
Net income before Federal income taxes	6,502,000	2,979,000	1,505,000	344,000
Provision for Federal income taxes	3,100,000	1,538,000	774,000	187,000
Net income	3,402,000	1,441,000	731,000	157,000
Net income per common share	1.98	1.34	0.76	0.25
FINANCIAL POSITION (YEAR END)				
Working capital	$30,803,000	$14,220,000	$ 9,263,000	$ 2,546,000
Total assets	66,544,000	35,040,000	23,901,000	10,844,000
Shareholders' equity	34,765,000	13,672,000	8,629,000	3,527,000
GENERAL STATISTICS (YEAR END)				
Average number of common shares outstanding	1,681,407	1,018,292	834,494	632,049
Number of employees	5,400	2,400	1,900	950

The figures in this table are taken from previous annual reports, without adjustment for subsequent poolings of interest. Net income excludes special credits of $356,000, $1,104,000, $549,000, $175,000 and $75,000 in 1965 through 1961 respectively. Net income per common share is based on the average number of shares outstanding during each year after provision for dividends on preferred stock. On the basis of including operations of pooled companies prior to the years of acquisition, results for the years 1964 through 1961 would have been as follows — Sales: $56,305,460, $56,357,936, $46,514,000, $26,646,000. Net income: $1,470,030, $1,618,000, $1,466,000, $557,000. Net Income per Common Share: $1.07, $1.22, $1.13, $0.45.

1961	
$4,491,000	
133,000	
75,000	
58,000	
0.13	
$1,614,000	
3,731,000	
2,477,000	
460,514	
450	



TELEDYNE, INC. AND SUBSIDIARIES **CONSOLIDATED BALANCE SHEET** **OCTOBER 31,1965**

ASSETS

CURRENT ASSETS:		
Cash		$ 3,676,000
Receivables —		
Accounts receivable, less reserve		10,495,000
Reimbursable costs and fees under defense contracts		12,228,000
Inventories, at the lower of cost (first in, first out)		
or market, less progress billings of $3,198,000		19,319,000
Prepaid expenses		763,000
Total current assets		$46,481,000
PROPERTY AND EQUIPMENT, at cost:		
Land ($2,886,000, including $2,145,000 representing		
cost of land held for expansion) and buildings	$ 7,292,000	
Equipment and improvements	13,404,000	
	$20,696,000	
Less — Accumulated depreciation and amortization	6,017,000	14,679,000
OTHER ASSETS:		
Cost of purchased businesses in excess of book		
values at dates of acquisition (Note 1)	$ 4,253,000	
Other	1,131,000	5,384,000
		$66,544,000

The accompanying notes are an integral part of this balance sheet.

LIABILITIES

CURRENT LIABILITIES:		
Notes payable (including $2,022,000 payable to banks)		$ 2,076,000
Current portion of long-term and subordinated debt		2,170,000
Accounts payable		6,449,000
Accrued liabilities		4,535,000
Federal income taxes (Note 1)		448,000
Total current liabilities		$15,678,000
LONG-TERM DEBT (Note 2)		12,955,000
SUBORDINATED DEBT (Note 2)		2,317,000
DEFERRED INCOME (Note 5)		829,000
SHAREHOLDERS' EQUITY:		
Preferred stock, $1 par value — authorized 500,000 shares; outstanding 71,685 shares — Series A (Note 4)	$ 72,000	
Common stock, $1 par value — authorized 3,000,000 shares; outstanding 1,837,424 shares (Notes 1 through 5)	1,837,000	
Additional paid-in capital	21,910,000	
Retained earnings (Notes 2 and 4)	10,946,000	34,765,000
		$66,544,000

TELEDYNE, INC. AND SUBSIDIARIES

CONSOLIDATED STATEMENT OF INCOME
For the Year Ended October 31,1965

SALES	$86,504,000
Cost of sales	66,638,000
GROSS PROFIT	$19,866,000
Selling and administrative expenses	12,329,000
PROFIT FROM OPERATIONS	$ 7,537,000
Interest expense	1,035,000
NET INCOME BEFORE FEDERAL INCOME TAXES	$ 6,502,000
Provision for Federal income taxes	3,100,000
NET INCOME	$ 3,402,000
SPECIAL ITEM — Reduction in Federal income taxes due to carryforward of losses incurred by purchased companies prior to dates of acquisition (Note 1)	356,000
NET INCOME AND SPECIAL ITEM	$ 3,758,000

Costs and expenses for the year include provisions of $1,838,000 for depreciation and amortization of property and equipment.

CONSOLIDATED STATEMENT OF RETAINED EARNINGS
For the Year Ended October 31,1965

BALANCE, OCTOBER 31, 1964:	
Previously reported	$ 5,422,000
Retained earnings of pooled companies (Note 1)	1,935,000
ADD OR (DEDUCT):	$ 7,357,000
Net income and special item	3,758,000
Cash dividends paid by pooled companies prior to dates of pooling	(95,000)
Cash dividends paid on preferred stock	(74,000)
BALANCE, OCTOBER 31, 1965 (Notes 2 and 4)	$10,946,000

The accompanying notes are an integral part of these statements.

CONSOLIDATED STATEMENT OF ADDITIONAL PAID-IN CAPITAL
For the Year Ended October 31,1965

BALANCE, OCTOBER 31, 1964	$ 7,125,000
ADD:	
Difference between net sales price and par value of common stock sold	7,569,000
Difference between fair value and par value of common stock issued in connection with purchases of businesses (Note 1)	4,090,000
Difference between par value of common stock issued in connection with poolings of interests and capital stock and additional paid-in capital of pooled companies (Note 1)	2,920,000
Difference between sales price and par value of common stock sold under stock option plans (Note 3)	206,000
BALANCE, OCTOBER 31, 1965	$21,910,000

The accompanying notes are an integral part of this statement.

ARTHUR ANDERSEN & CO.

To the Stockholders and Board of Directors, Teledyne, Inc.:

We have examined the consolidated balance sheet of Teledyne, Inc. (a Delaware corporation) and subsidiaries as of October 31, 1965, and the related statements of income, additional paid-in capital, and retained earnings for the year then ended. Our examination was made in accordance with generally accepted auditing standards and accordingly included such tests of the accounting records and such other auditing procedures as we considered necessary in the circumstances.

In our opinion, the accompanying financial statements present fairly the consolidated financial position of Teledyne, Inc. and subsidiaries as of October 31, 1965, and the results of their operations for the year then ended, in conformity with generally accepted accounting principles applied on a basis consistent with that of the preceding year.

ARTHUR ANDERSEN & CO.

Los Angeles, California
December 3,1965

NOTE 1 - MERGERS AND ACQUISITIONS

During the year, the Company issued common stock, including 70,945 shares issued after October 31, 1965, for the net assets of several businesses which, as of that date, have been accounted for as poolings of interests. Had the 1964 results of operations of companies pooled in 1965 been included in the Company's 1964 consolidated statement of income, previously reported net income of $1,441,000 would have been approximately $1,470,000.

Also during the year, the Company purchased the net assets of certain businesses, and results of their operations are included since dates of acquisition.

In 1965, Federal income tax benefit of $1,377,000 resulting from the carryforward of losses incurred by purchased businesses prior to acquisition has been first applied as a reduction of the cost of these businesses in excess of book values to the extent that such excess was available ($1,021,000), and the remaining benefit ($356,000) has been recorded as a special item in the statement of income. In the opinion of counsel, such loss carryforwards are available to reduce taxable income earned subsequent to acquisition.

NOTE 2 - LONG-TERM AND SUBORDINATED DEBT

LONG-TERM DEBT-At October 31, 1965, long-term debt consisted of the following:

5¼% bank note payable in installments to 1970	$10,000,000
5% Convertible Debentures, due December 1, 1966, convertible into common stock at approximately $123.00 per share	1,598,000
5% trust deed note payable in installments to 1967, secured by land and buildings	1,170,000
5¾% notes payable in installments to 1976, secured by land and buildings	940,000
Other (including $788,000 secured by land and buildings)	1,234,000
	$14,942,000
Less—Current portion	1,987,000
	$12,955,000

SUBORDINATED DEBT-At October 31, 1965, subordinated debt consisted of the following:

5¾% Convertible Subordinated Notes, $83,000 payable annually to 1977 with the balance due May 1, 1978, redeemable at 105¾% of face value commencing May 1, 1966, and at declining premiums thereafter, convertible into common stock at $27.50 per share until May 1, 1968, and $35.00 thereafter	$ 2,000,000
6½% Convertible Subordinated Debentures, $100,000 payable annually starting in 1966, convertible into common stock at $27.50 per share	500,000
	$ 2,500,000
Less—Current portion	183,000
	$ 2,317,000

Under the various borrowing agreements, the Company has agreed to maintain minimum amounts of working capital and net worth plus subordinated debt, and is restricted with respect to borrowings, purchase and sale of assets and capital stock, and payment of dividends. At October 31, 1965, these requirements were complied with and retained earnings of $3,532,000 were available for payment of dividends.

The Company has reserved approximately 104,000 shares of its common stock for issuance upon conversion of the long-term and subordinated debt.

NOTE 3 - STOCK OPTIONS AND WARRANTS

At October 31, 1965, 211,730 shares of common stock were reserved for issuance under stock option plans. Options to purchase 98,116 of these shares (of which 26,295 were exercisable) at prices from $13 to $48 per share were outstanding at that date.

The Company also has reserved 6,000 shares of its common stock for issuance at $50 per share upon exercise of outstanding warrants which were issued by an acquired company prior to acquisition and will expire in November, 1966.

NOTE 4 - PREFERRED STOCK

The outstanding Series A preferred shares are entitled to voting rights, cumulative annual dividends at the rate of $1 per share, and preference of $30 per share ($2,150,000 in total) in event of liquidation. They are redeemable in whole, but not in part, at $33.33 per share at the Company's option, and are convertible, at the holders' option into common stock on a share for share basis. The Company has reserved 71,685 shares of common stock for conversion of the preferred stock. No cash dividends may be paid on common stock until all accumulated dividends on preferred stock are paid or provided for.

NOTE 5 - COMMITMENTS AND CONTINGENT LIABILITIES

Annual rentals under long term leases expiring between 1968 and 1983 are approximately $1,400,000 through 1969 and $300,000 thereafter. Deferred income, which is being amortized as a reduction of lease rental costs, represents the difference between the proceeds and book values of equipment sold and leased back in prior years.

Subsequent to October 31, 1965, the Company conditionally agreed to exchange approximately 120,000 common shares for the net assets of certain businesses.

BOARD OF DIRECTORS

Henry E. Singleton, *Chairman*

George Kozmetsky

Arthur Rock

Claude E. Shannon

Robert B. Sprague

OFFICERS

Henry E. Singleton, *President*

George Kozmetsky, *Executive Vice President & Secretary*

James F. Battey, *Vice President*

A. V. Holmlund, *Vice President*

Frank W. T. La Haye, *Vice President*

Jay T. Last, *Vice President*

H. J. Smead, *Vice President*

Robert B. Sprague, *Vice President*

Teck A. Wilson, *Vice President*

George L. Farinsky, *Treasurer*

CORPORATE HEADQUARTERS

12525 Daphne Avenue

Hawthorne, California

TRANSFER AGENTS

Bank of America, N.T.&S.A.

111 West Seventh Street

Los Angeles, California

United States Trust Company of New York

45 Wall Street

New York, New York

REGISTRARS

Security First National Bank

124 West Fourth Street

Los Angeles, California

First National City Bank

55 Wall Street

New York, New York

LITHO IN U.S.A.